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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,385	12/12/2003	Shuichi Suzuki	520.43328X00	8521
20457	7590	12/12/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			CANTELMO, GREGG	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/733,385	<b>Applicant(s)</b> SUZUKI ET AL.	
	<b>Examiner</b> Gregg Cantelmo	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 12-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,12,13,17-20,22,24 and 25 is/are rejected.
- 7) ☒ Claim(s) 14-16,21,23 and 26-28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Preliminary Amendment***

1. In response to the amendment received September 27, 2005:
  - a. Claims 1, 3-7 and 12-28 are pending. Claims 2 and 8-11 have been cancelled as per Applicant's request;
  - b. The specification objection has been withdrawn in light of the new title;
  - c. The 112 2<sup>nd</sup> rejection has been withdrawn in light of the amendment to the claims;
  - d. The prior art rejection of Yamamoto is withdrawn upon further consideration and in light of Applicant's response;
  - e. The prior art rejections of Finkelshtain stand as set forth in the previous office action and restated herein;
  - f. The double patenting rejection has been overcome in light of the terminal disclaimer.

### ***Claim Objections***

2. Claim 15 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 14. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-19, 22 and 24 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16-19, 22 and 24 recites the limitation "the surface" in the claims. There is insufficient antecedent basis for this limitation in the claim. However the base claims for each of claims 16-19, 22 and 24 fail to provide clear antecedent basis for the term. Furthermore it is unclear which surface of the carrier the claims are directed to so as to clearly defined applicant's invention.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7, 12-20, 22 and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,380,126 (Finkelshtain).

Finkelshtain discloses a catalytic material comprising a catalytic material and catalyst material which are covalently bonded (Fig. 2c and col. 8 ll. 14-25 as applied to claims 1 and 7). The catalyst carrier contains carbon ( as applied to claim 2).

The catalyst carrier includes a nitrogen atom component in the carbon network (Fig. 2c as applied to claims 3 and 7).

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The catalytic component can be platinum (Fig. 2c as applied to claims 4-6).

The nitrogen heteroatoms in Fig. 2c forms covalent bonds with the metallic component (as applied to claim 12).

The nitrogen heteroatoms are bonded to carbon atoms in the adjacent carbon rings (Fig. 2c as applied to claims 13, 20 and 25).

The nitrogen atoms are located on the carrier surface between adjacent carbon rings (Fig. 2c as applied to claims 16, 18, 22 and 24).

The carbon component is one of amorphous or crystalline (as applied to claims 14-15, 21 and 23).

The density of the nitrogen atoms in the carrier relative to the remaining hydrocarbon constituents in the structure in Fig. 2c is inherently in a range from about 0.1-30 atomic percent (as applied to claims 17 and 19).

### ***Response to Arguments***

5. Applicant's arguments filed September 27, 2005 have been fully considered but they are not persuasive.

Applicant argues that Finkelshtain does not teach nor suggest the presently claimed catalytic material, including wherein the catalyst carrier contains carbon, in particular amorphous or crystalline carbon, and more particularly where the carbon material is selected from carbon black, graphite, carbon nanofibers and carbon nanotubes.

The examiner agrees with Applicant's argument but only with respect to those claims which positively recite the carbon material selected from the group noted above, in particular claims 26-28. Such claims having been objected to as set forth below.

The examiner is not persuaded by this argument with respect to the remaining claims, since the remaining claims fail to positively recite the Markush group.

Applicant further points to the specification for an alleged definition of carbon. However a review of the disclosure on page 4 of the specification while drawn to the carbon is not considered to be an explicit and limiting definition of the claimed carbon composition. And while the claims are read in light of the specification, the disclosure on page 4, lines 10-12 is not expressly limited in the scope of the claimed invention. If applicant desires such disclosure to be given patentable weight, Applicant is advised to incorporate the disclosure on page 4, lines 10-12 into the claims. It should be noted that this suggestion is by no means an admission of allowability to the disclosure of page 4 but rather serves to show that the rebuttal reliant upon the disclosure on page 4 has not patentable impact on the broadest reasonable interpretation of the claimed carbon.

A review of Fig. 2c shows a catalyst support comprising a carbon material in the organic ring and heteroatoms along the chain which provide covalent bond between the heteroatoms and the catalyst metal.

#### ***Terminal Disclaimer***

6. The terminal disclaimer filed on September 27, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the

expiration date of copending application no. 11/062,597 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Allowable Subject Matter***

7. Claims 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record appears to teach, fairly suggest or render obvious the invention of claims 26-28. In particular: Finkelshtain fails to teach or suggest of the carbon carrier being selected from the group consisting of carbon black, graphite, carbon nanofibers, and carbon nanotubes.

The structure of the carrier of Finkelshtain as shown in Fig. 2c is significantly different from those carriers claimed in claims 26-28 and there is insufficient teaching or suggestion within the prior art of record to obviate these claims.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (571) 272-1283. The examiner can normally be reached on Monday to Thursday from 9 a.m. to 6 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. FAXES received after 4 p.m. will not be processed until the following business day. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gc



December 3, 2005

**GREGG CANTELMO  
PRIMARY EXAMINER**